Indy ORF

atggaaattgaaattggcgaacaaccccagcctccggtgaagtgctccaacttcttcgctaaccactggaagggattggt
tgtgttcctggtgccgctgctatgtctgcctgttatgctgctaaacgaaggcgccgaatttcggtgcatgtacctccttt
tggtaatggccatattttgggttacggaagccttgcctctctatgtgacgtccatgataccgattgtggccttcccaata
atgggtataatgagctcggatcagacttgccgcttgtacttcaaggatacgctggtgatgttcatgggcggcattatggt
cgccctggctgtggagtactgtaatctacacaaacgtcttgccttgagggtaatccagatcgtgggctgcagtccccgca
gattacactttggcctcatcatggttacaatgtttttgagcatgtggatttcgaacgccgcctgtactgccatgatgtgt
ccgattatccaagccgtgctggaggagctgcaggctcagggtgtctgcaaaatcaaccatgagcctcaataccaaatcgt
tggaggcaacaagaaaaacaacgaggatgagccaccataccccaccaagatcactctgtgctactatctgggcattgcct
acgcctcctcgctgggtggctgtggaaccatcatcggaactgccaccaatcttaccttcaagggcatctacgaggctcgt
ttcaagaactccaccgaacagatggacttccccaccttcatgttctactcggtgccatccatgttggtctacaccttgct
gacattcgtgttcctgcaatggcacttcatgggtctgtggcgtcccaagagcaaggaggcacaggaagtccagaggggac
gagagggcgccgatgtcgccaaaaaggttatcgatcagcgctacaaggatctgggtcccatgtccattcacgagatccaa
gtgatgattctgttcatttttatggttgtgatgtacttcacccgcaagcccggcatcttttgggatgggccgatttgct
gaattccaaggacattcgtaactctatgcccactatttttgtcgtcgtcatgtgcttcatgctgcccgccaattatgctt
tcctacgctactgcaccagacgcggtggtccagtgcccacgggtcccactccatcgctgatcacctggaagttcatccag
accaaggtgccatggggtctggtgttcctgcttggcggtggcttcgctttggccgaaggcagcaagcagagcggcatggc
caagctgattggcaatgctctgattggattgaaggttctgcccaactctgtcctcttactggtggtcatcctggtggctg
tgttcctgaccgccttcagctccaatgtggcgattgccaacattattattcccgttctggccgagatgtccctggccatt
gagatccatcctctgtacctgatcctgcccgctggcttggcctgcagtatggccttccacctgccggttagtactccgcc
caacgctttggttgctggctatgccaacattaggacgaaggacatggccattgctggaatcggtccgaccatcattacca
tcatcaccctgtttgttttctgccaaacctggggcctggttgtctatccgaaccttaactcgttccccgaatgggctcag
atttatgccgcggcagcactgggaaacaagacgcactag

Fig 1

MEIEIGEQPQPPVKCSNFFANHWKGLVVFLVPLLCLPVMLLNEGAEFRCM
YLLLVMAIFWVTEALPLYVTSMIPIVAFPIMGIMSSDQTCRLYFKDTLVM
FMGGIMVALAVEYCNLHKRLALRVIQIVGCSPRRLHFGLIMVTMFLSMWI
SNAACTAMMCPIIQAVLEELQAQGVCKINHEPQYQIVGGNKKNNEDEPPY
PTKITLCYYLGIAYASSLGGCGTIIGTATNLTFKGIYEARFKNSTEQMDF
PTFMFYSVPSMLVYTLLTFVFLQWHFMGLWRPKSKEAQEVQRGREGADVA
KKVIDQRYKDLGPMSIHEIQVMILFIFMVVMYFTRKPGIFLGWADLLNSK
DIRNSMPTIFVVVMCFMLPANYAFLRYCTRRGGPVPTGPTPSLITWKFIQ
TKVPWGLVFLLGGGFALAEGSKQSGMAKLIGNALIGLKVLPNSVLLLVVI
LVAVFLTAFSSNVAIANIIIPVLAEMSLAIEIHPLYLILPAGLACSMAFH
LPVSTPPNALVAGYANIRTKDMAIAGIGPTIITIITLFVFCQTWGLVVYP
NLNSFPEWAQIYAAAALGNKTH

Fig 2

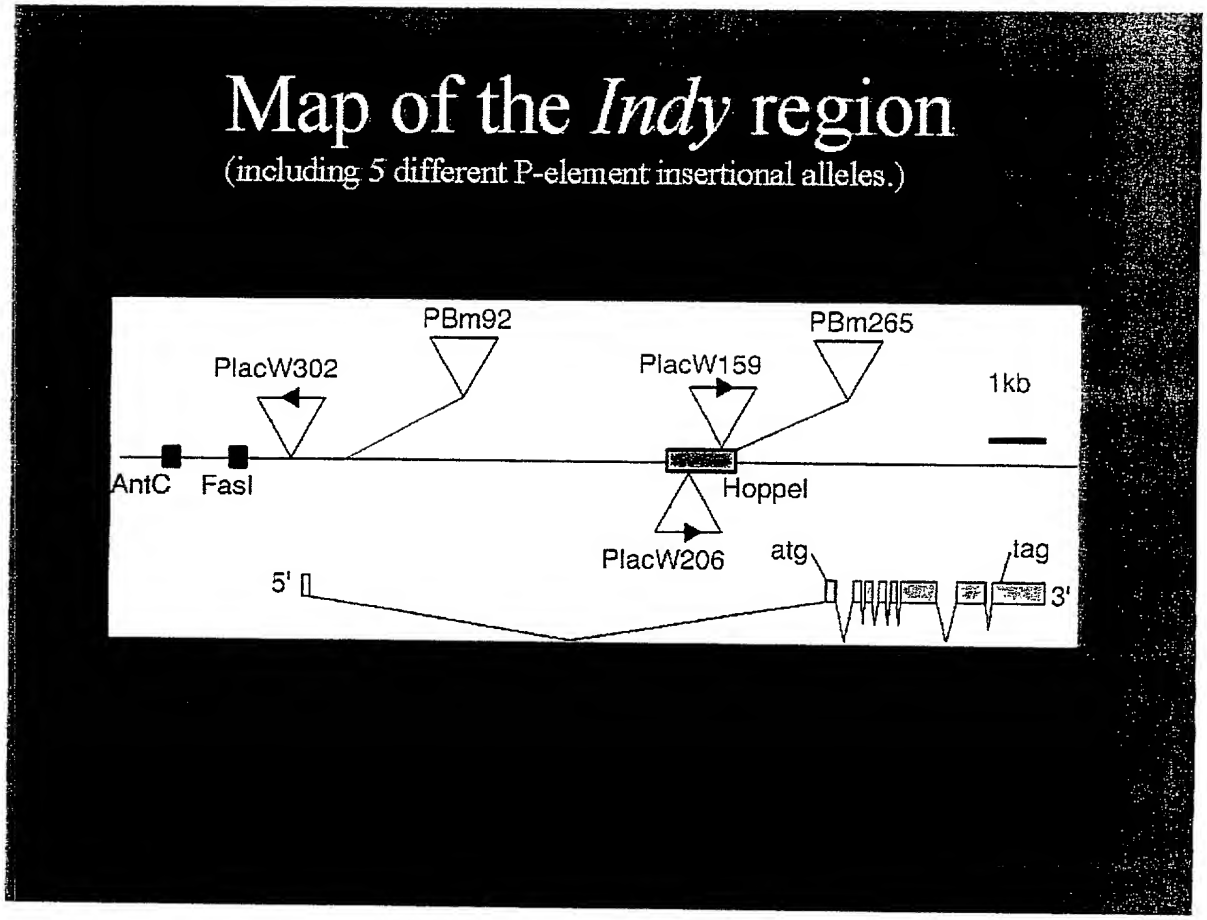
Map of the *Indy* region
(including 5 different P-element insertional alleles.)
PBm92
PBm265
PlacW302
PlacW159
1kb
AntC
FasI
Hoppel
PlacW206
atg
tag
5'
3'

Fig 3

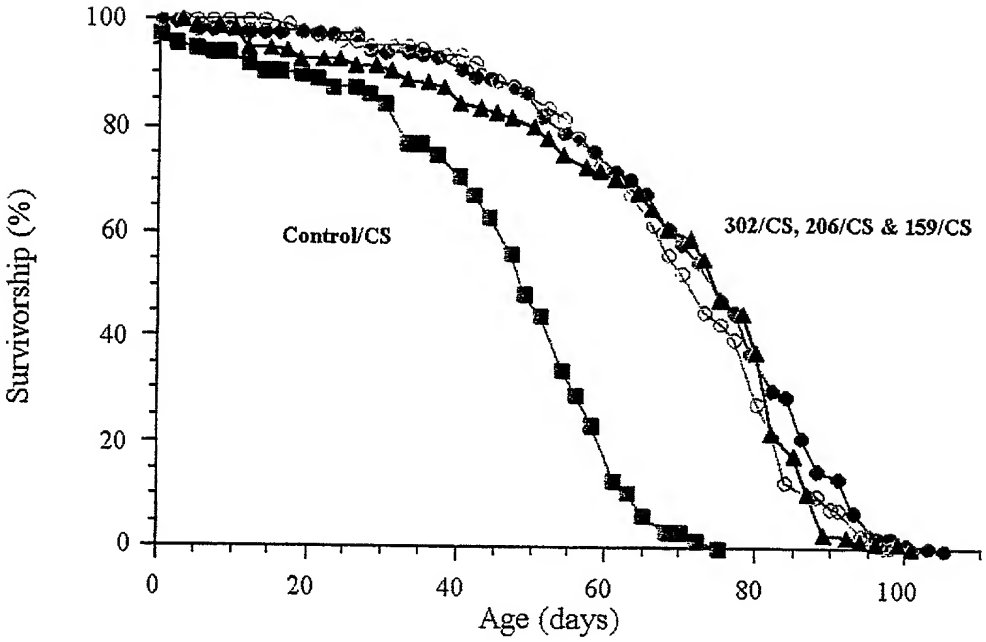
100
80
60
40
20
0
Survivorship (%)
Control/CS
302/CS, 206/CS & 159/CS
0
20
40
60
80
100
Age (days)

Fig 4

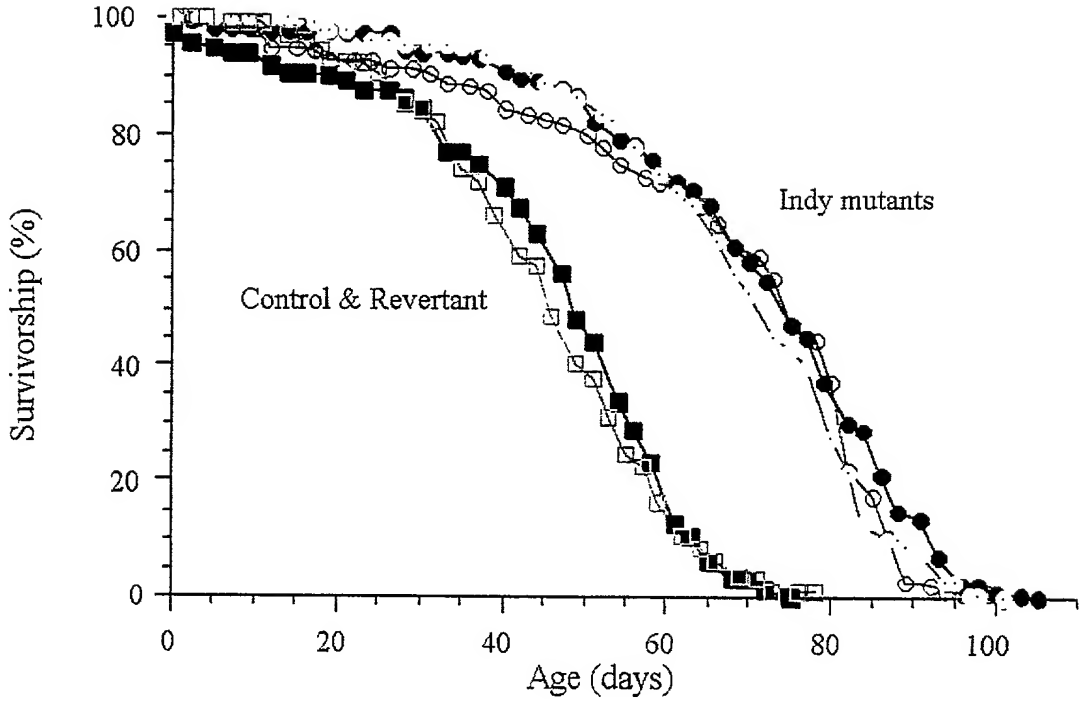
100
80
60
40
20
0
Survivorship (%)
Indy mutants
Control & Revertant
0
20
40
60
80
100
Age (days)

Fig 5

Survivorship for females heterozygous for 206 (206-*Hk*) or 1085 control (control-*Hk*) enhancer trap line in a *Hyperkinetic* background at 25°C

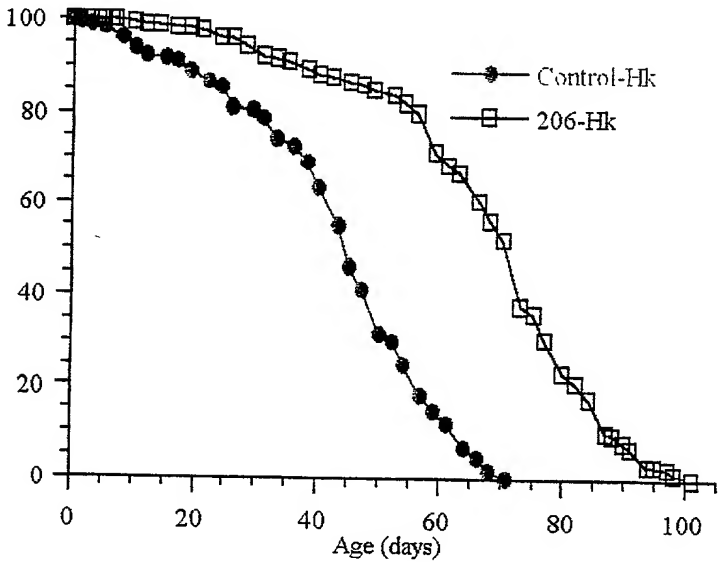

Fig 6

Survivorship for males from the Luckinbill long-lived line (1L6) and heterozygous for the 206, 1085, *wg* and Luckinbill 1L6 line at 25°C

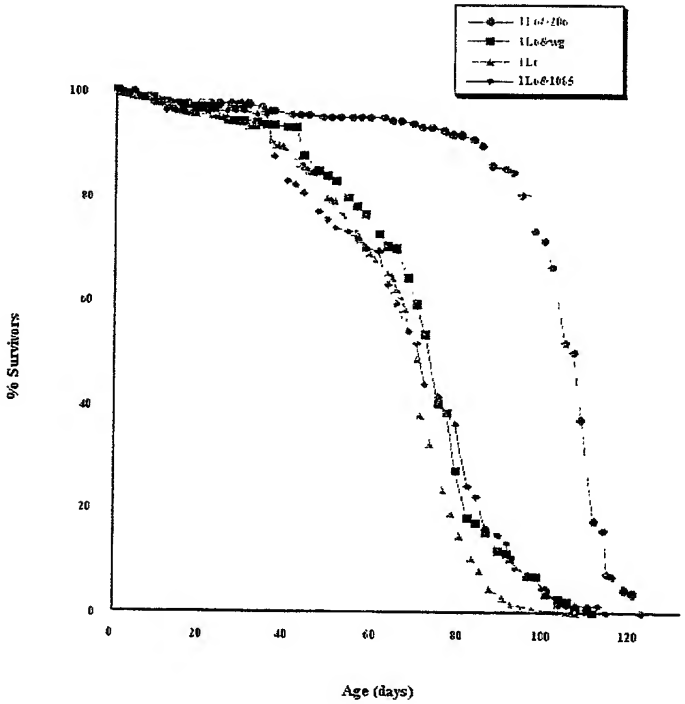

Fig 7

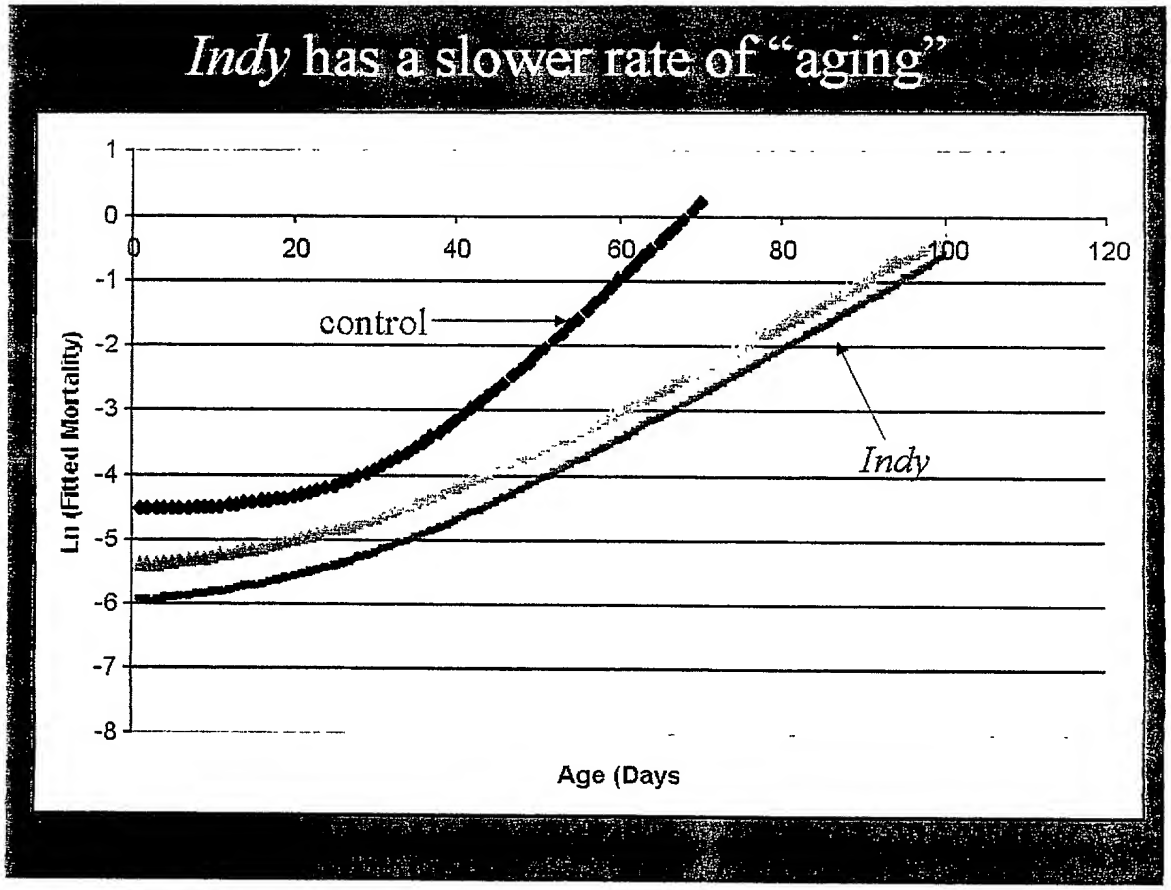
Indy has a slower rate of "aging"
1
0
-1
-2
-3
-4
-5
-6
-7
-8
0
20
40
60
80
100
120
control
Indy
Ln (Fitted Mortality)
Age (Days

Fig 8

Indy codes for a Sodium Dicarboxylic acid Cotransporter

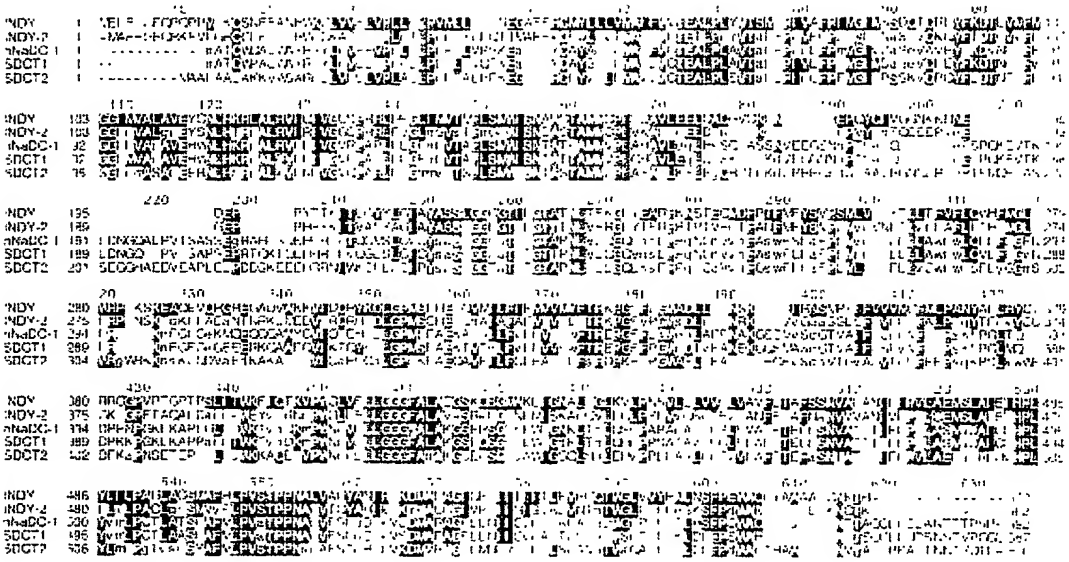

Fig 9

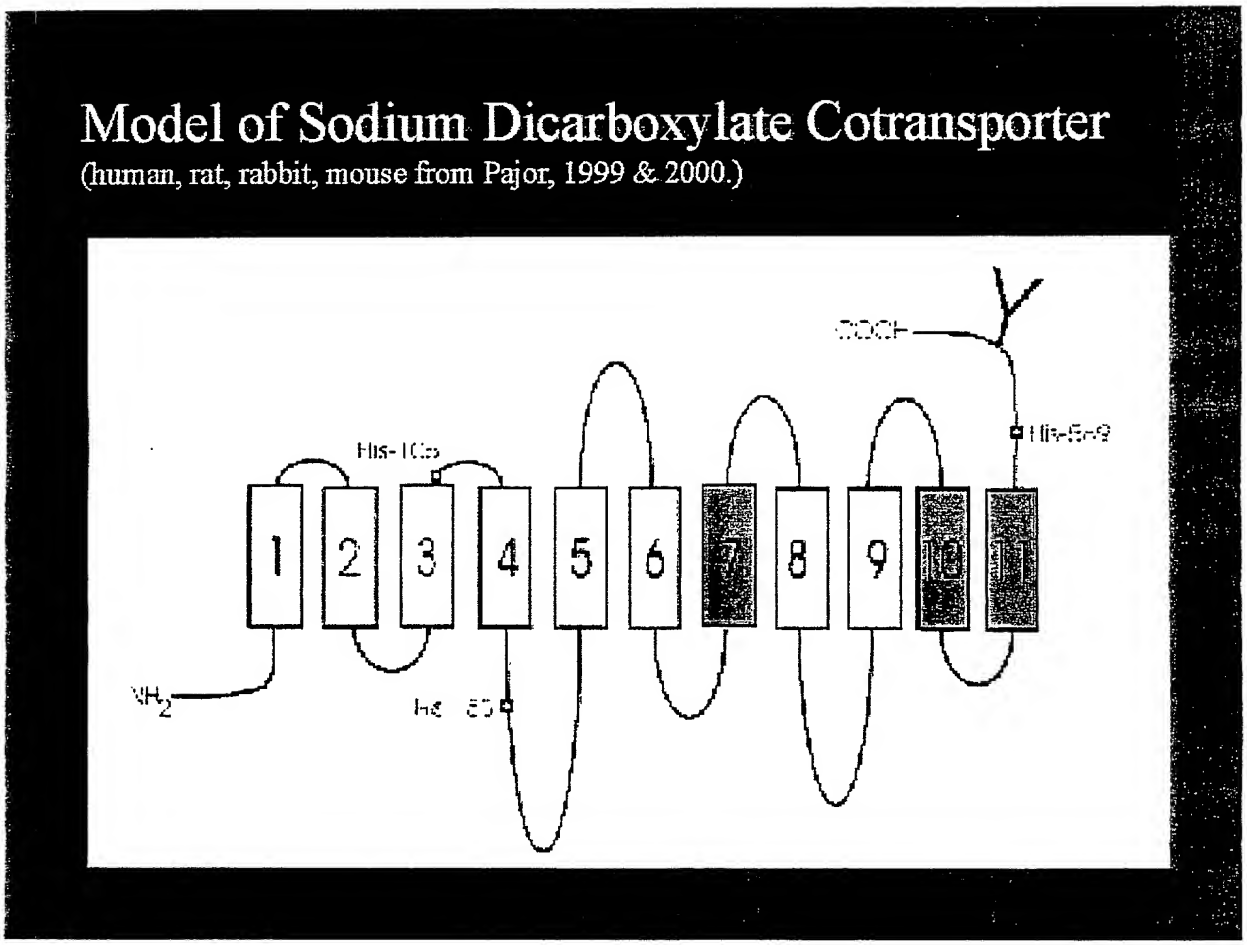
Model of Sodium Dicarboxylate Cotransporter
(human, rat, rabbit, mouse from Pajor, 1999 & 2000.)
1
2
3
4
5
6
7
8
9
10
11

Fig 10

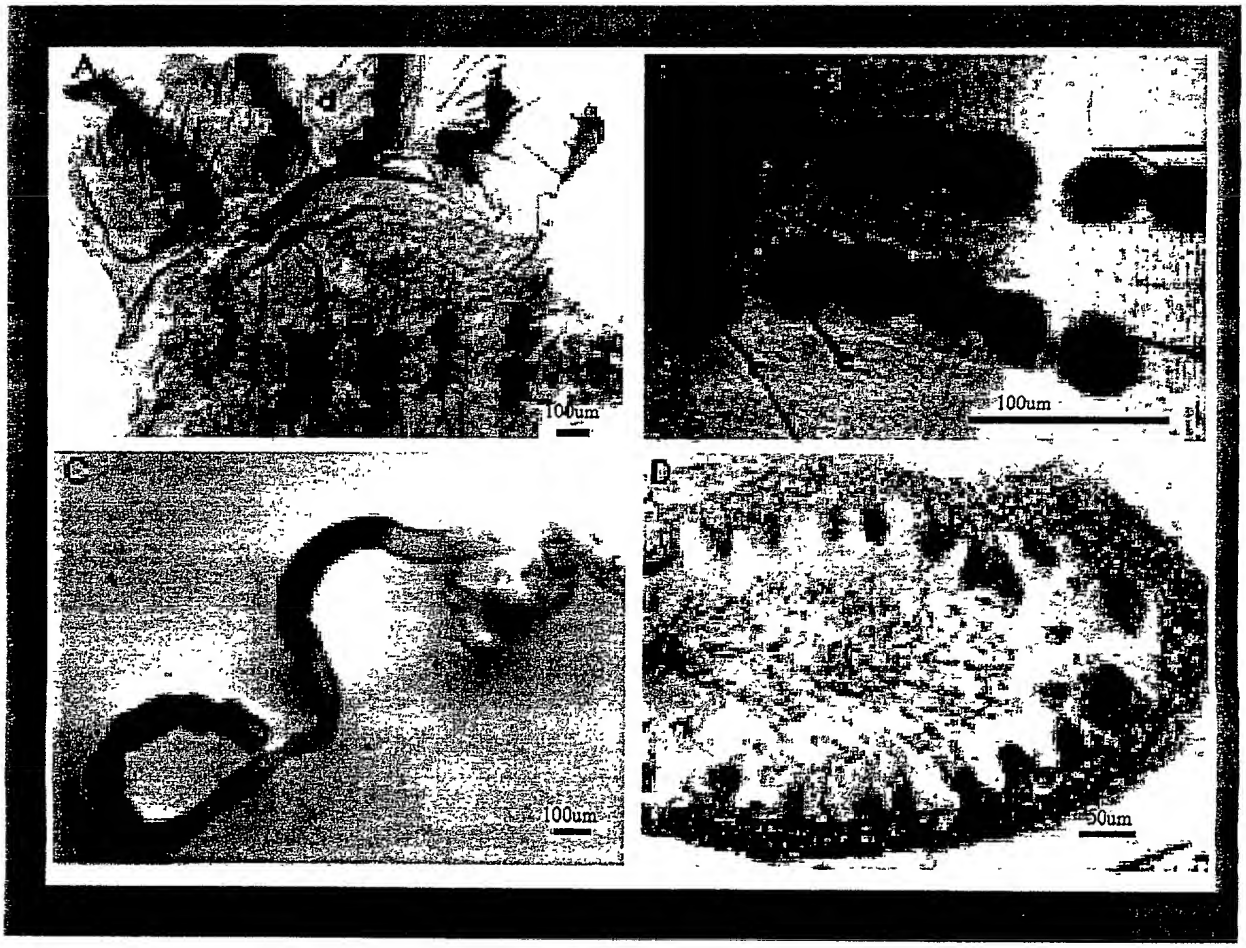

Fig 11

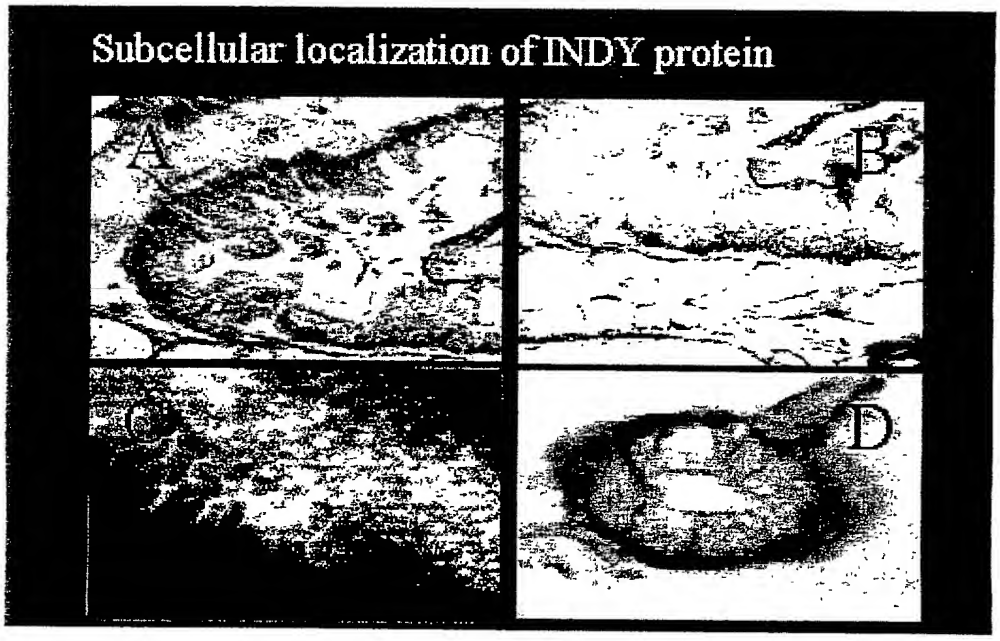

Fig 12

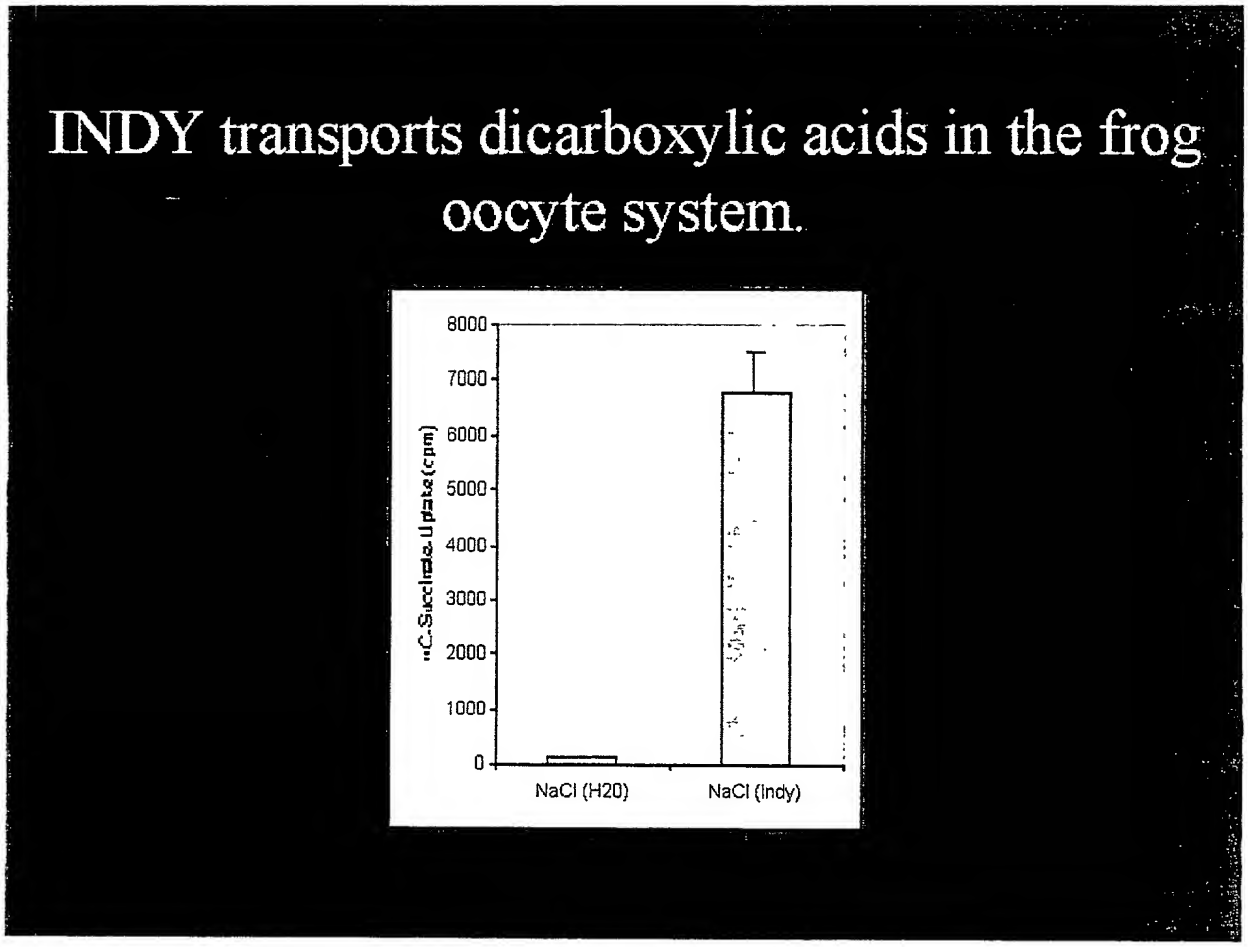
INDY transports dicarboxylic acids in the frog oocyte system.
8000
7000
6000
5000
4000
3000
2000
1000
0
NaCl (H20)
NaCl (Indy)

Fig 13

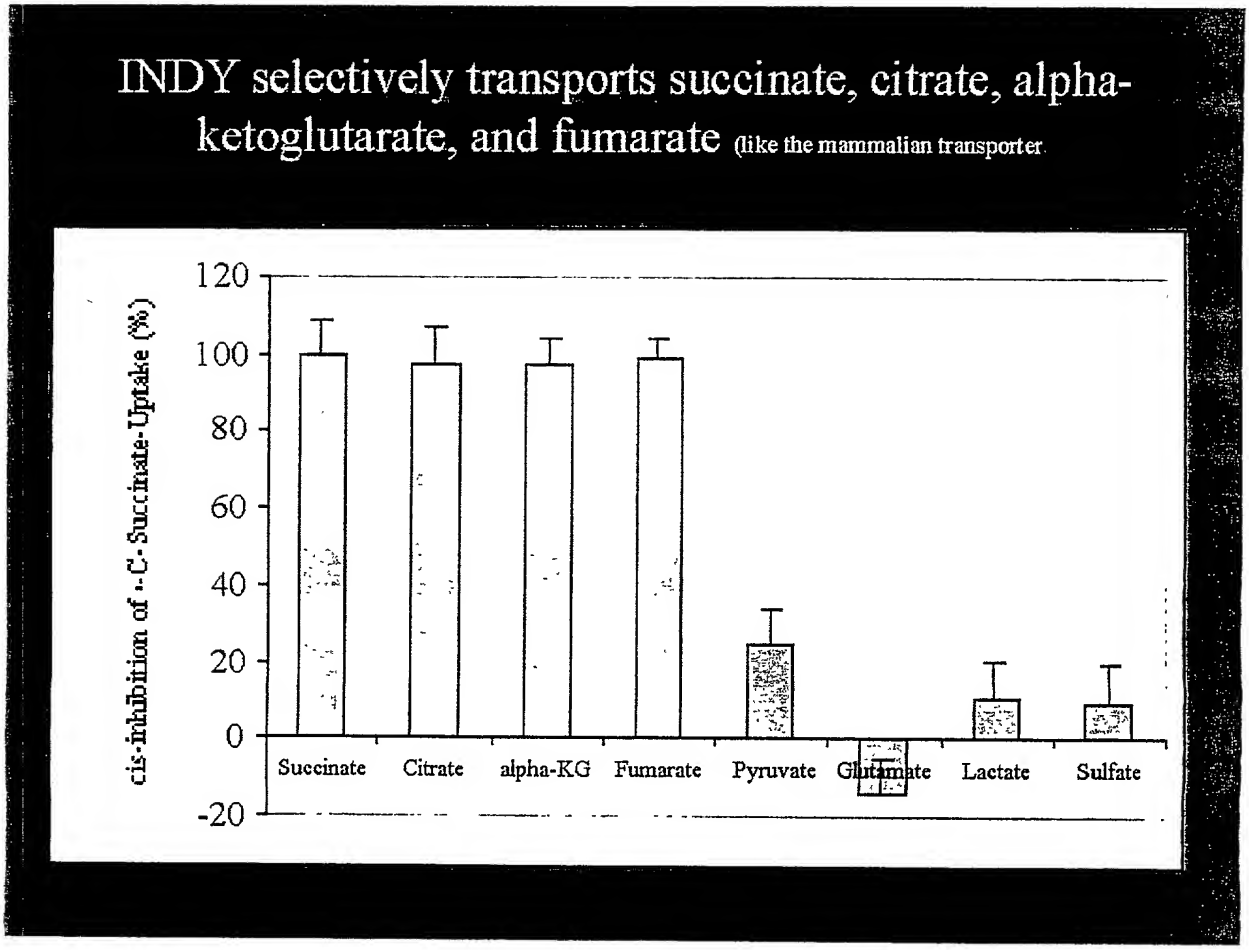
INDY selectively transports succinate, citrate, alpha-ketoglutarate, and fumarate (like the mammalian transporter
cis-inhibition of ^{14}C-Succinate-Uptake (%)
120
100
80
60
40
20
0
-20
Succinate
Citrate
alpha-KG
Fumarate
Pyruvate
Glutamate
Lactate
Sulfate

Fig 14

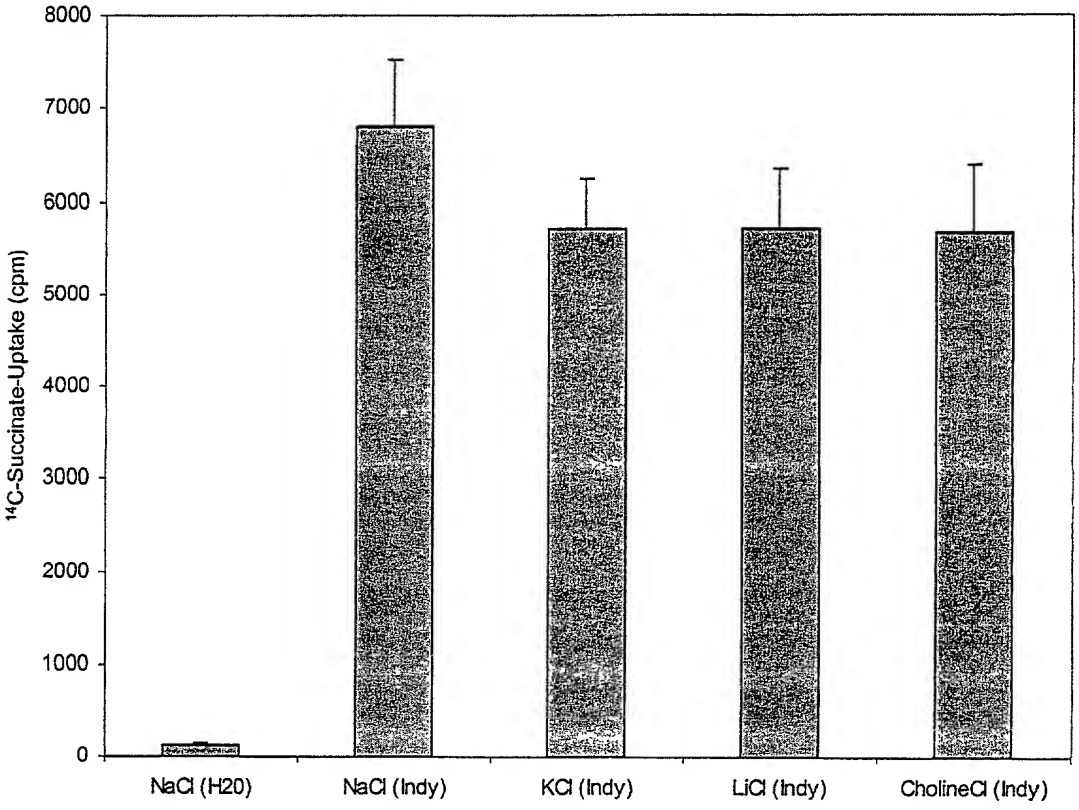
8000
7000
6000
5000
4000
3000
2000
1000
0
14C-Succinate-Uptake (cpm)
NaCl (H20)
NaCl (Indy)
KCl (Indy)
LiCl (Indy)
CholineCl (Indy)

Fig 15

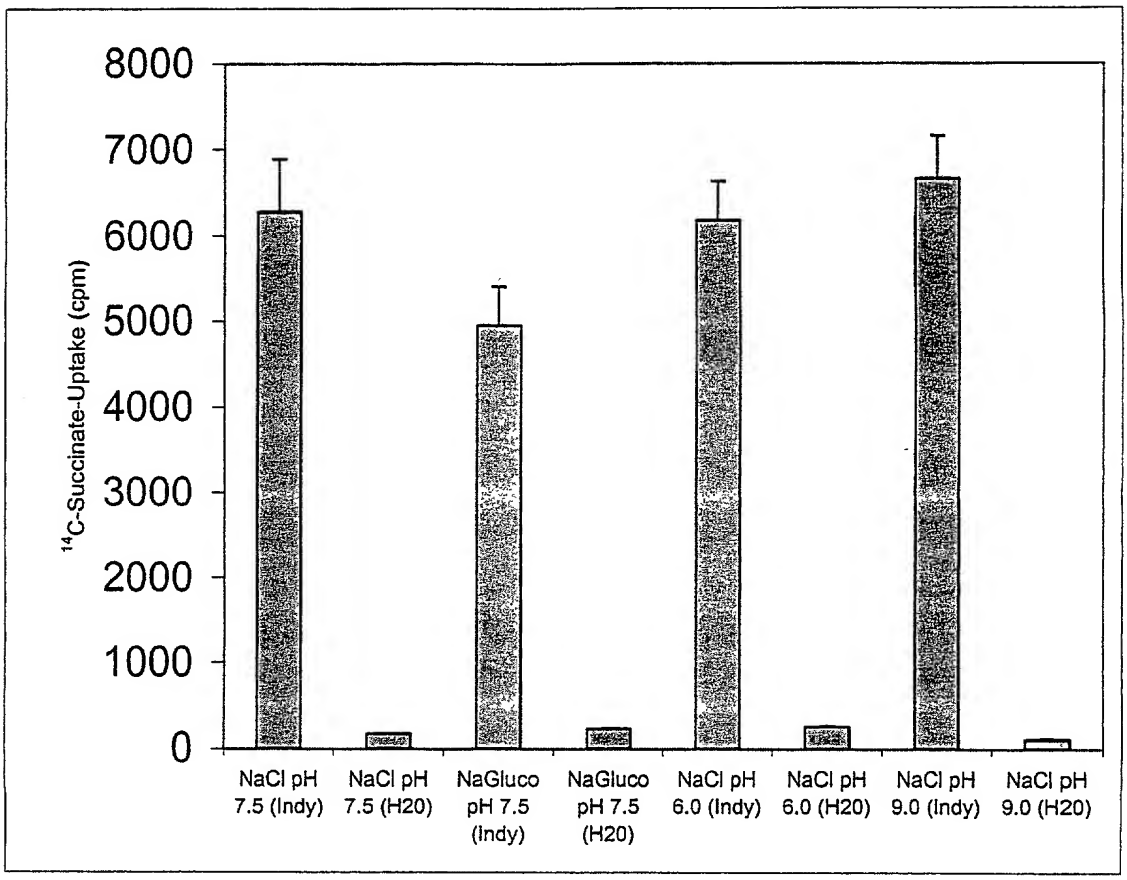
8000
7000
6000
5000
4000
3000
2000
1000
0
^{14}C-Succinate-Uptake (cpm)
NaCl pH 7.5 (Indy)
NaCl pH 7.5 (H20)
NaGluco pH 7.5 (Indy)
NaGluco pH 7.5 (H20)
NaCl pH 6.0 (Indy)
NaCl pH 6.0 (H20)
NaCl pH 9.0 (Indy)
NaCl pH 9.0 (H20)

Fig 16

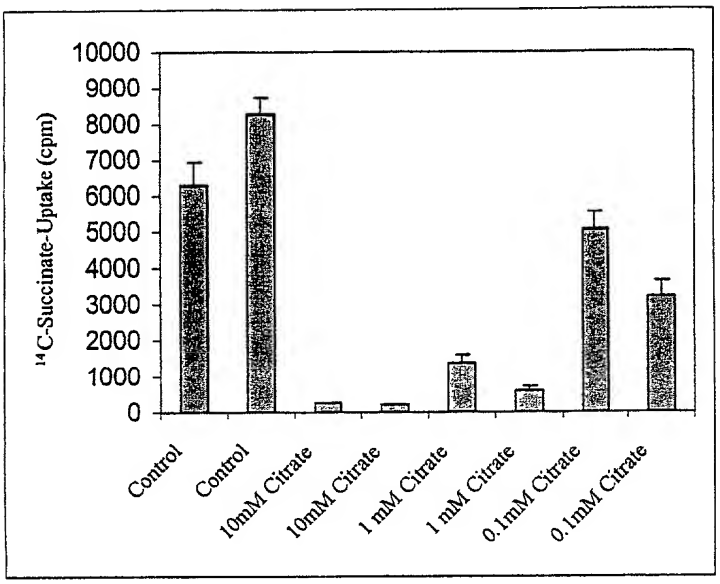
^{14}C-Succinate-Uptake (cpm)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Control
Control
10mM Citrate
10mM Citrate
1 mM Citrate
1 mM Citrate
0.1mM Citrate
0.1mM Citrate

Fig 17

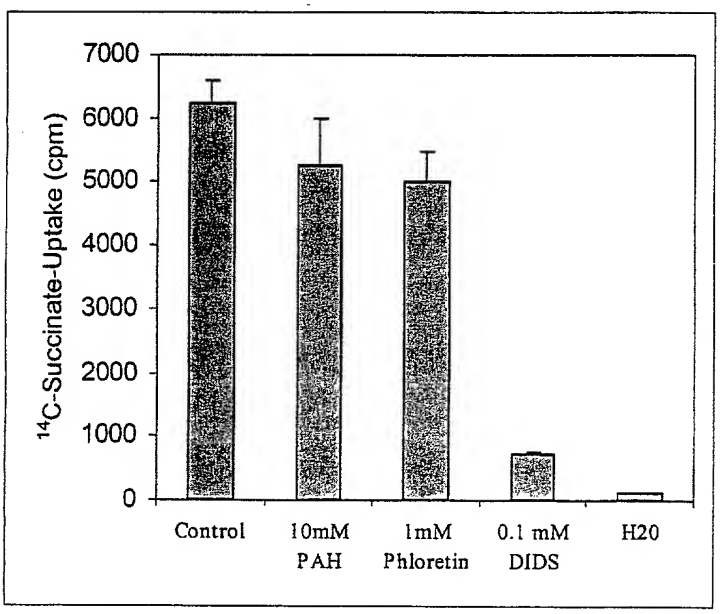
7000
6000
5000
4000
3000
2000
1000
0
^{14}C-Succinate-Uptake (cpm)
Control
10mM PAH
1mM Phloretin
0.1 mM DIDS
H20

Fig 18

Fertility of *Indy* mutants is not reduced.

(high calorie conditions)

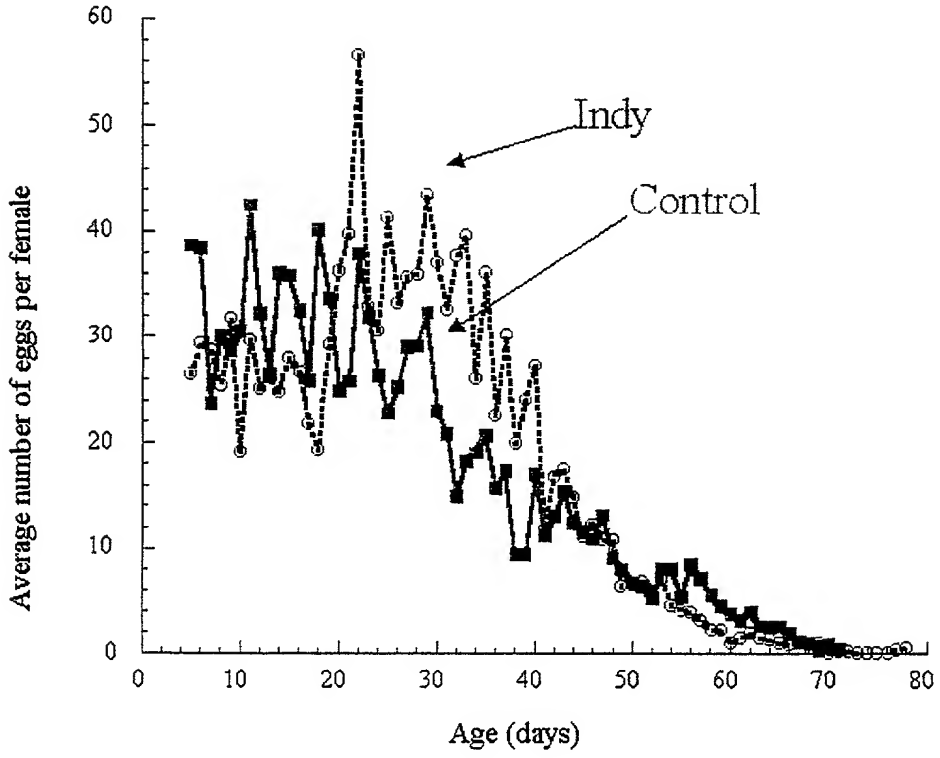

Fig. 19

Indy egg production is reduced under low calorie conditions.

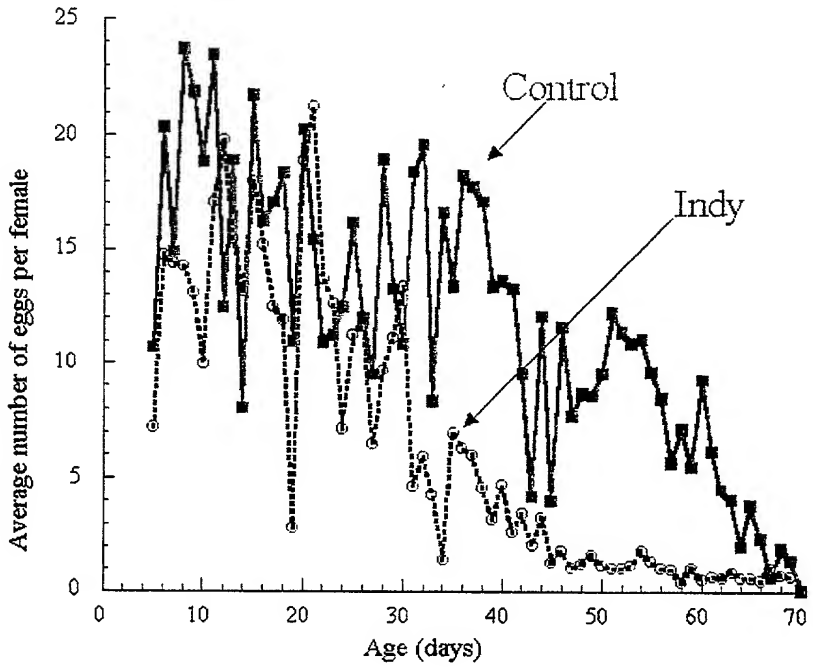

Fig 20

Reducing calories increases life span.

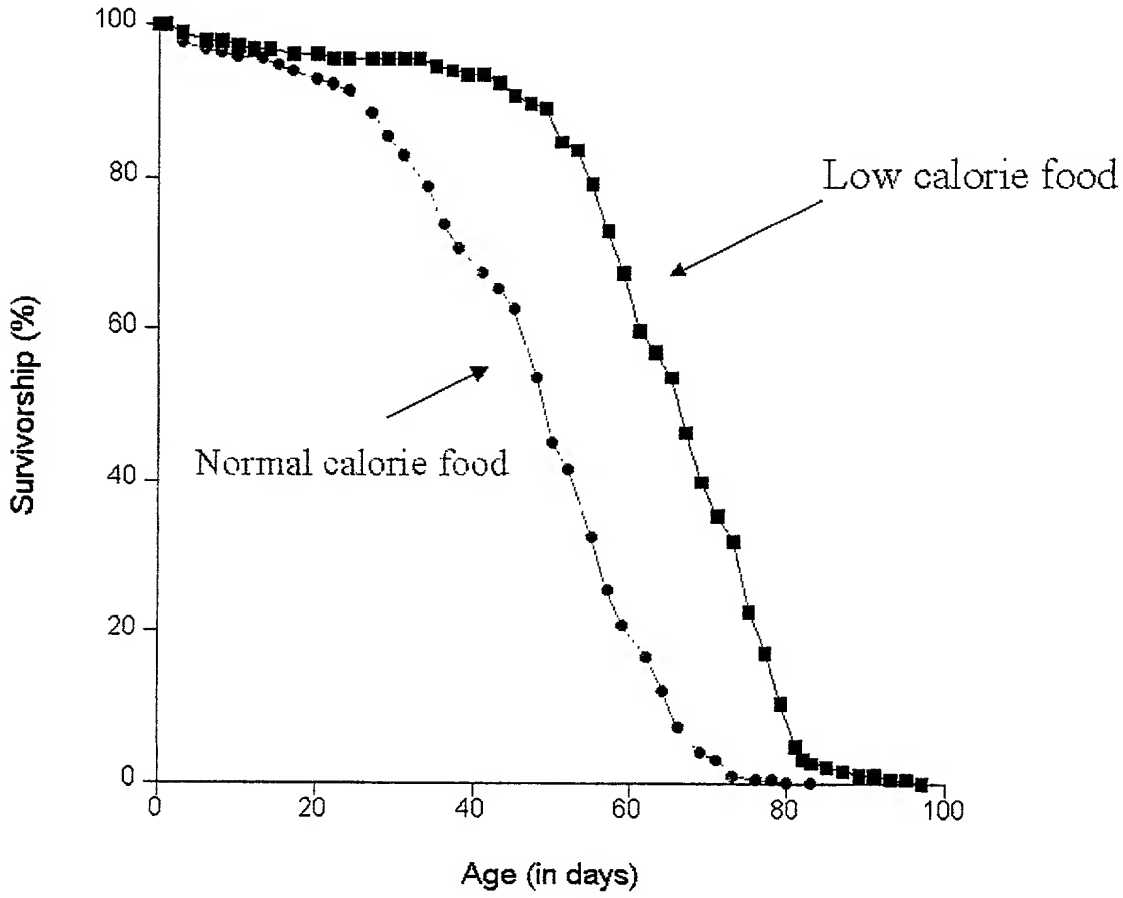

Fig 21

Reducing calories decreases *Indy/Indy* life span

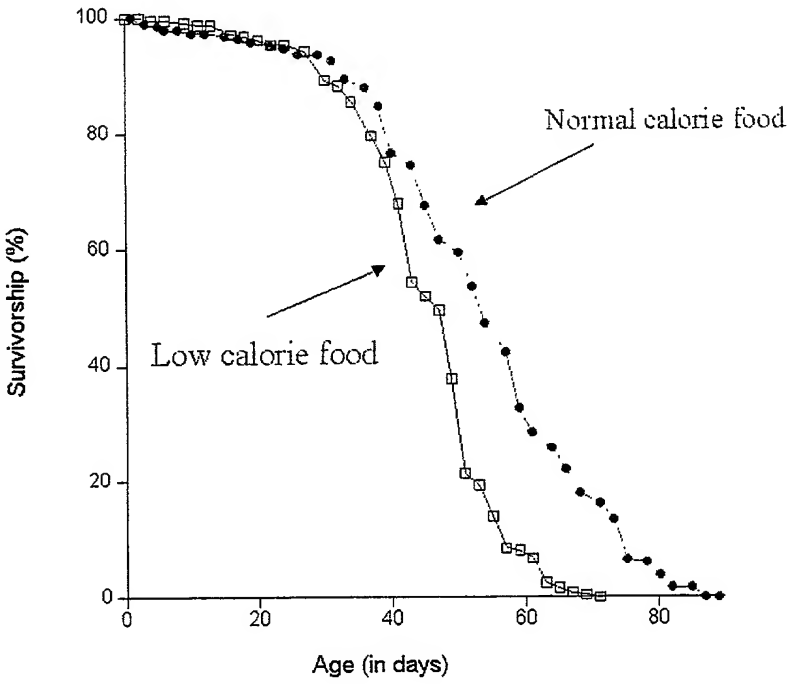

Fig22